

Exhibit A



NATIONAL BOARD OF MEDICAL EXAMINERS®
Subject Examination Program

Comprehensive Basic Science Examination

Score Interpretation Guide

NBME® subject examinations provide medical schools with a tool for measuring examinees' understanding of the basic sciences. Although these examinations are designed to be broadly appropriate as part of overall examinee assessment, course objectives vary across schools, and the congruence between subject examination content and course objectives should be considered when interpreting test scores and determining grading standards. Specifically, subject examination scores should not be used alone, but rather in conjunction with other indicators of examinee performance in determination of grades.

Subject Examination Scores

The subject examination score is scaled to a mean of 70 and a standard deviation of 8. A CBSE score of 70 is approximately equivalent to a score of 200 on the United States Medical Licensing Examination® (USMLE®) Step 1. The vast majority of scores range from 45 to 95, and although the scores have the "look and feel" of percent-correct scores, they are not. Because the CBSE and USMLE Step 1 cover very similar content, this scale provides a useful tool for comparing the scores of your examinees with those of a large, nationally representative group taking the licensing examination at the end of the second year of medical school. Additional information about the relationship between CBSE scores and USMLE Step 1 scores is provided in the table on the next page.

Unlike percent-correct scores, subject examination scores are statistically equated across test administrations. Scores are statistically adjusted for shifts in test difficulty across different forms of the examination. This makes it possible to track school and examinee performance over time.

Precision of Scores

Measurement error is present on all tests, and the standard error of measurement (SEM) provides an index of the (im)precision of scores. The SEM indicates how far an examinee's score on the examination might stray from his/her "true" proficiency level across repeated testing using different sets of items covering the same content. Using the SEM, it is possible to calculate a score interval that will encompass about two thirds of the observed scores for a given true score by adding and subtracting the SEM from that score. For this examination, the SEM is approximately 3 points. For example, if an examinee's true proficiency on the examination is 60, the score he/she achieved on the examination will usually (two times out of three) fall between 57 and 63 ($60 - 3$ and $60 + 3$).

Score and Performance Feedback

Summary information on the examinee group tested, examination purpose and number of items scored is provided on each page of the feedback. The *Roster of Scaled Scores* reports a total test scaled score for each examinee. Reported scores also appear in a comma separated text file that can be downloaded and used to export scores. An *Examinee Performance Profile*, which graphically displays content areas of strength and weakness, is provided for each examinee.

If there were at least 2 examinees, *Scaled Score Descriptive Statistics* for reported scores are provided along with a *Frequency Distribution* of the total test scaled score. If there were at least 10 examinees for a single form administration, a detailed *Content Area Item Analysis Report* is provided. Content area item descriptors and group item performance also appear in a file that can be downloaded. If there were at least 10 examinees for a single form administration or 20 examinees for a multiple form administration, a *Summary Content Area Item Analysis Report* is provided.

If there were at least 15 examinees, a *School Summary Performance Profile*, which graphically displays areas of strength and weakness in each major content area for your specific test administration, is provided.

An approximate USMLE performance equivalency table and current norms are attached. Previous norms can be found on the *NBME Services Portal (NSP)*.



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Comprehensive Basic Science Examination (CBSE)

Approximate USMLE® Performance Equivalents

The table below provides approximate performance equivalents for USMLE Step 1, making it possible for you to translate the CBSE scores of your examinees to the scale used for USMLE Step 1. *Specific information on USMLE Step 1 and the current minimum passing score is available on the USMLE web site at www.usmle.org.*

To use the table, locate an examinee's CBSE score in the associated column and note the entry in the column labeled "Step 1 Equivalent". For example, if an examinee's score is 62, the corresponding entry of 180 indicates that the examinee's performance on the CBSE is approximately equivalent to a Step 1 score of 180.

NOTE: This examination is not intended to predict performance on USMLE. Rather, it is intended to be used as a tool to determine an examinee's relative areas of strength and weakness in general topic areas.

Approximate Step 1 Equivalents			
CBSE Score	Step 1 Equivalent	CBSE Score	Step 1 Equivalent
≥94	≥260	68	195
92	255	66	190
90	250	64	185
88	245	62	180
86	240	60	175
84	235	58	170
82	230	56	165
80	225	54	160
78	220	52	155
76	215	50	150
74	210	48	145
72	205	46	140
70	200	≤44	≤135



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Norms for Examinee Performance

The table below provides norms to aid in the interpretation of examinee performance. These norms enable you to compare your examinees' subject examination scores with the performance of a group of examinees taking the examination at a similar stage of training. The norms reflect the performance of a reference group of examinees from LCME-accredited medical schools who took a paper or web version of this examination for the first time as an end-of-course or end-of-year examination, or for purposes other than as a makeup exam.

The number of schools, sample size (N), mean, and standard deviation (SD) of the norm group for each academic period are listed below. The academic year for basic science exams is defined as test dates between July 1st and June 30th.

Period	Academic Years	Number of Schools	N	Mean	SD
1	YYY1-YYY4	75	20,200	64	10
2	YYY4-YYY6	76	16,857	64	11

To use the table, locate an examinee's CBSE score in the associated column and note the entry in the column labeled "Percentile Rank". For example, if an examinee's score is 70, the corresponding percentile rank of 77 in Period 1 indicates that 77% of the national group of examinees taking this examination had scores at or below 70.

CBSE Score	Percentile Ranks		CBSE Score	Percentile Ranks	
	Period 1	Period 2		Period 1	Period 2
≥93	99	99	73	83	81
92	99	99	72	81	78
91	99	99	71	79	76
90	99	99	70	77	73
89	98	98	69	74	70
88	98	98	68	71	67
87	98	98	67	67	64
86	98	97	66	64	60
85	97	96	65	60	57
84	97	96	64	57	53
83	96	95	63	53	50
82	95	94	62	50	46
81	94	93	61	45	41
80	94	92	60	40	38
79	93	91	59	37	34
78	92	90	58	32	30
77	90	88	57	28	26
76	89	86	56	26	24
75	87	84	55	21	20
74	86	83	≤54	18	18

**NBME®**
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YYY6-YYY8 Academic Year Norms

The table below provides norms to aid in the interpretation of examinee performance. These norms enable you to compare your examinees' subject examination scores with the performance of a group of examinees taking the examination at a similar stage of training. The norms reflect the performance of a reference group of examinees from LCME-accredited medical schools who took a paper or web version of this examination for the first time as an end-of-course or end-of-year examination, or for purposes other than as a makeup exam.

The number of schools, sample size (N), mean, and standard deviation (SD) of the norm group for each academic period are listed below. The academic year for basic science exams is defined as test dates between July 1st and June 30th.

Academic Years	Number of Schools	N	Mean	SD
YYY6-YYY8	91	16,539	65.1	11.5

To use the table, locate an examinee's score in the column labeled "Scaled Score" and note the entry in the adjacent column labeled "Percentile Ranks". This number indicates the percentage of examinees that scored at or below the examinee's scaled score.

Scaled Score	Percentile Ranks	Scaled Score	Percentile Ranks
93 or above	99	73	78
92	99	72	75
91	98	71	73
90	98	70	70
89	98	69	68
88	97	68	63
87	97	67	60
86	96	66	57
85	95	65	53
84	95	64	50
83	94	63	47
82	93	62	43
81	92	61	39
80	91	60	36
79	89	59	32
78	87	58	28
77	86	57	25
76	84	56	22
75	82	55	19
74	80	54 or below	17